AREA DEL TRIANGULO

Dado $\overrightarrow{p1p2}$= 2i+3j-k y $\overrightarrow{p1p3}$=i+2j+2k

Determine el área del triangulo con vertices $\overrightarrow{p1p2}$ y $\overline{p1p3}$

PLAN

A= $\frac{\left\|\overrightarrow{P1P2}\right\|\left\|\overrightarrow{P1P3}-\overrightarrow{P1P2}\right\|}{2}$

DESARROLANDO

$\left\|\overrightarrow{P1P2}\right\| = \sqrt{\overrightarrow{P1P2}.\overrightarrow{P1P2}}$

$=\sqrt{(2,3,-1)(2,3,-1)}$

$=\sqrt{4+9+1} = \sqrt{14}$

$\overrightarrow{p1p3} - \overrightarrow{p1p2}$= (1,2,2)-(2,3,-1)= (-1,-1,3)

$\left\|\overrightarrow{p1p3}\text{-}\overrightarrow{p1p2}\right\| = \sqrt{(-1)^2+(-1)^2+(3)^2} = \sqrt{11}$

tenemos

A=$\frac{\sqrt{14}\,\sqrt{11}}{2} = \frac{\sqrt{154}}{2}$